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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,699	11/21/2005	Jose Miguel Mulet Salort	BJS-4982-4	8024

23117 7590 10/01/2007

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EXAMINER	
KUMAR, VINOD	

ART UNIT	PAPER NUMBER
1638	

MAIL DATE	DELIVERY MODE
10/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,699	MULET SALORT ET AL.	
	Examiner	Art Unit	
	Vinod Kumar	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *4-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/30/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Group I, claims 1-3 in the paper filed on August 10, 2007 is acknowledged.

Applicants argue that the subject matter of Groups I and II shares a common inventive concept, and the claims of Groups I and II are not independent and distinct. Applicants further argue that searching the inventions of Groups I and II together will not be an undue burden (response, page 1, line 18 through line 4 of page 2).

Applicant's arguments were fully considered but were not found to be persuasive. The instant application is a national stage entry of a PCT Application (PCT/EP2004/050405, filed 04/01/2004) and is subject to restriction requirement under 35 U.S.C. 121 and 372. The technical feature linking the inventions of Groups I-IX does not constitute a special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art teachings of Town et al., for the reasons of record stated in the Office action mailed on July 10, 2007. Thus the inventions of Groups I-IX do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features.

Furthermore, inventions of Groups I and II are directed to different nucleotide sequences encoding different amino acid sequences which are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute different inventive concepts. Databases and resources allocation at the PTO have changed and the examination of additional sequences on

the merits in the instant application would present a burden on PTO resources. See Official Gazette Notice of March 27, 2007 (volume 1316, pages 122-123).

Additionally, invention of Group I is directed to different method steps compared to the invention of Group II. It must be noted that class-2 non-symbiotic haemoglobin proteins are members of a complex haemoglobin gene family implicated in diverse functions within a plant cell, and thus would result in additional search burden to search all the members of the gene family. The invention of Group I requires altering yield, biomass, architecture or altered cell division in a plant, the invention of Group II has different requirement, such as increasing abiotic stress tolerance in a plant. Furthermore, invention of Group I does not require any non-symbiotic haemoglobin or plant haemoglobin gene sequence as required by the invention of Group II.

Claims 4-30 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on August 10, 2007. Accordingly, claims 1-3 are examined on merits in this Office action. This restriction is made FINAL.

This application contains claims 4-30 drawn to an invention nonelected with traverse in the reply filed on August 10, 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

2. An initialed and dated copy of Applicant's IDS form 1449 filed on 09/30/05 is attached to the instant Office action.

Priority

3. Acknowledgment is made of Applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy of Application No. EPO 03075974.0, filed on April 1, 2003 has been received.

Specification

The disclosure is objected to because of the following informalities:

4. The amino acid sequences on page 14, lines 34-37 must be referred to by their sequence identifiers, as required by 37 CFR 1.821.

Description of drawings do not have SEQ ID listed with the sequences. For example, the sequences in Figure 1 must be referred to by their sequence identifiers, as required by 37 CFR 1.821.

If the sequences appearing in the specification do not have sequence ID numbers assigned to them, then an amendment to the sequence listing will be required

as well. There must not be any new matter submitted, therefore it is important to be careful to include only the sequences that are already disclosed in the current specification. Failure to correct the deficiency will be held a non-responsive to this Office action.

Appropriate action/corrections are required.

Drawings

The drawings are objected to because of the following informalities:

5. Drawings are objected to because they fail to comply with 37CFR 1.83.

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figure 10 has sequences that are included in the specification and/or sequence listing. It is suggested to delete Figure 10.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing

date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Appropriate corrections are required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-2 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1 and 2 read on a naturally practiced method comprising naturally occurring hybridization between a plant lacking a nucleic acid sequence encoding class-2 non-symbiotic haemoglobin, and a plant overexpressing said nucleic acid which is found in nature and thus, are unpatentable to Applicants. A naturally occurring gene duplication in a plant can also increase expression of an endogenous nucleic acid sequence encoding a class-2 non-symbiotic haemoglobin. The method, as claimed in claims 1 or 2 have the same characteristics as those found naturally and therefore does not constitute patentable subject matter. See *American Wood v. Fiber Disintegrating Co.*, 90 U.S. 566 (1974), *American Fruit Growers v. Brodgex Co.*, 283 U.S. 2 (1931), *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 33 U.S. 127 (1948), *Diamond v.*

Chakrabarty, 206 USPQ 193 (1980). It is suggested that claims be amended by inserting the term --isolated-- before "nucleic acid sequence" in line 3 of claim 1 so that claims 1 and 2 read on a method that is not practiced in nature.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The preamble recites a method for altering plant characteristics, whereas last recited method step is increasing expression of a nucleic acid sequence encoding class-2 non-symbiotic haemoglobin. The claim does not recite active method steps that are required to practice the instantly claimed method to achieve the instantly claimed phenotype in the plant. Dependent claims 2 and 3 are also rejected because they fail to overcome the deficiencies of claim 1.

Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in their recitations "increased" and "altered" in line 2 of claim 1, and recitation "increased" in line 1 of claim 2 because the term "increased" or "altered" is a relative

term which renders the claim indefinite. The term "increased" or "altered" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The metes and bounds of these recitations are unclear as they are not defined. The recitations lack a comparative basis with a plant which does not comprise increasing expression of a nucleic acid sequence encoding plant class-2 non-symbiotic haemoglobin.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in recitations "preferably" in line 3, "more preferably" in line 3, and "most preferably" in line 4, which is confusing since it is unclear if these "preferably", "more preferably" or "most preferably" are intended to be claim limitations. It is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Appropriate action/corrections are required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a transgenic plant with increased growth rate and large inflorescence comprising transformation of a plant with a nucleic acid encoding a plant class-2 non-symbiotic haemoglobin protein does not reasonably provide

enablement for (a) any plant class-2 non-symbiotic haemoglobin and (b) increasing expression of a nucleic acid sequence encoding class-2 non-symbiotic haemoglobin protein by a method other than transforming a plant with said nucleic acid sequence. The claim(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art which it pertains, or which it is most nearly connected, to make and/or use the invention.

The claimed invention is not supported by an enabling disclosure taking into account the *Wands* factors. *In re Wands*, 858/F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988). *In re Wands* lists a number of factors for determining whether or not undue experimentation would be required by one skilled in the art to make and/or use the invention. These factors are: the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples of the invention, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, and the breadth of the claim

Claims are broadly drawn to a method for altering plant characteristics selected from one or more of increased yield, increased biomass, altered architecture or altered cell division of a plant, comprising increasing expression in a plant of a nucleic acid sequence encoding plant class-2 non-symbiotic haemoglobin, or wherein said class-2 non-symbiotic haemoglobin is defined in SEQ ID NO: 3 encoding SEQ ID NO: 4.

Claim 1 is directed to any plant class-2 non-symbiotic haemoglobin, and claim 3 is directed to any dicotyledonous or *Brassicaceae* class-2 non-symbiotic haemoglobin.

The instant specification provides guidance on how to make and use a nucleic sequence (SEQ ID NO: 3) encoding an *Arabidopsis* class-2 non-symbiotic haemoglobin (SEQ ID NO: 4) in a method of producing a transgenic plant with increased growth rate and increased (large) inflorescence. See pages 36-42.

The instant application fails to provide guidance on how to make nucleic acid sequences encoding a class-2 non-symbiotic haemoglobin from any plant species. While the specification teaches a nucleotide sequence encoding an Arabidopsis class-2 non-symbiotic haemoglobin (SEQ ID NO: 4), it does not teach full scope of nucleotide sequences encoding other plant class-2 non-symbiotic haemoglobin that confer altered plant characteristics or altered cell division when overexpressed in a plant.

It must be emphasized that class-2 non-symbiotic haemoglobin proteins are members of a complex non-symbiotic haemoglobin proteins, whose function still remains to be elucidated. Endogenous expression pattern suggests that members of the gene family may be involved in diverse metabolic pathways, such as, seed maturation, abiotic stress response, flower development etc. See for example Hunt et al. (Plant Molecular Biology, 47:677-692, 2001; see page 677, abstract; page 685; figure 2; page 687; figure 2; page 689; Applicant's IDS), and Dordas et al. (Annals of Botany, 91:173-178, 2003; see page 173, left column). Thus one of skilled in the art would not expect all plant class-2 non-symbiotic hameoglobins to cause altered characteristics, such as yield enhancement, increased biomass, altered architecture, or altered cell division to plants. The specification does not teach which class-2 non-symbiotic hameoglobins would confer said traits and which would not. In the absence

of guidance, undue experimentation would have been required by one skilled artisan at the time the claimed invention was made to isolate other class-2 non-symbiotic hameoglobins from other plants and use them in a method of obtaining a plant with altered characteristics as instantly claimed. Also see In re Bell, 26 USPQ2d 1529, 1532 (Fed. Cir. 1993) and In re Deuel, 34 UPSQ2d, 1210 (Fed. Cir. 1995), which teach that the mere existence of a protein does not enable claims drawn to a nucleic acid encoding that protein. See also Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016 at page 1027, where it is taught that the disclosure of a few gene sequences did not enable claims broadly drawn to any analog thereof.

Given the claim breath, unpredictability, and lack of guidance as discussed above, undue experimentation would have been required by one skilled in the art to develop and evaluate nucleic acid and sequences encoding any class-2 non-symbiotic hameoglobins

The instant also specification fails to provide guidance on a method of altering plant characteristics comprising increasing expression of a nucleic acid sequence encoding plant class-2 non-symbiotic haemoglobin in any manner other than transforming a plant with a nucleic acid sequence encoding a plant class-2 non-symbiotic haemoglobin protein, such as instant SEQ ID NO: 4. The specification does not provide guidance on co-factors, or positive regulators of class-2 non-symbiotic haemoglobin for example that makes the class-2 non-symbiotic haemoglobin gene to overexpress to produce a plant with said altered characteristic. The specification provides no guidance on up-stream regulatory factors, for example, that may be

necessary in stimulating the overexpression of endogenous class-2 non-symbiotic haemoglobin (SEQ ID NO: 4). In the absence guidance, undue experimentation would have been required by a skilled artisan at the time the claimed invention was made to determine how a plant with altered characteristics could have been produced by a method that comprises increasing the expression of a nucleic acid sequence encoding a plant class-2 non-symbiotic haemoglobin without transforming the plant with a nucleic acid sequence encoding a plant class-2 non-symbiotic haemoglobin (SEQ ID NO: 4).

Given the breadth of the claims, unpredictability of the art and lack of guidance of the specification, as discussed above, undue experimentation would be required by one skilled in the art to make and use the claimed invention. Therefore, it is maintained that the claimed invention is not enabled as commensurate in scope with the claims.

9. Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Federal Circuit has recently clarified the application of the written description requirement. The court stated that a written description of an invention "requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials." University of California v. Eli Lilly and Co., 119 F.3d 1559, 1568; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The

court also concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id. Further, the court held that to adequately describe a claimed genus, Patent Owner must describe a representative number of the species of the claimed genus, and that one of skill in the art should be able to "visualize or recognize the identity of the members of the genus." Id.

Finally, the court held:

A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus. Id.

See also MPEP Section 2163, page 174 of Chapter 2100 of the August 2005 version, column 1, bottom paragraph, where it is taught that

[T]he claimed invention as a whole may not be adequately described where an invention is described solely in terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function. A biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.

See also Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ 2d 1016 at 1021, (Fed. Cir. 1991) where it is taught that a gene is not reduced to practice until the inventor can define it by "its physical or chemical properties" (e.g. a DNA sequence).

The essential feature of the claim 1 is a nucleic acid sequence encoding a class-2 non-symbiotic haemoglobin from any plant. The essential feature of the claim 3 is a

nucleic acid sequence encoding a class-2 non-symbiotic haemoglobin from any dicotyledonous or *Brassicaceae plant* species.

The specification describes increased growth rate and large inflorescence function of SEQ ID NO: 4 when expressed in a transgenic plant. See pages 36-42.

The specification does not describe the structure of the full scope of class-2 non-symbiotic haemoglobins from different plant species. The specification does not describe the function of class-2 non-symbiotic haemoglobins from diverse plant sources.

There is no description of the structure required for the recited function, and no description of the necessary and sufficient elements of a plant class-2 non-symbiotic haemoglobin. Thus, Applicant's broadly claimed genus encompasses structures whose function is unrelated to the instantly claimed SEQ ID NO: 4. The specification fails to describe the function of increased yield, increased biomass, altered architecture or altered cell division for any plant class-2 non-symbiotic haemoglobins.

The only species described in the specification is SEQ ID NOs: 3, which encodes SEQ ID NO: 4. Nucleic acid sequences encoding class-2 non-symbiotic haemoglobins from diverse plant sources are not described, and thus their function is not described.

One of skill in the art would not recognize that Applicant was in possession of the necessary common attributes or features of the genus in view of the disclosed species. Since the disclosure fails to describe the common attributes that identify members of the genus, and because the genus is highly variant, SEQ ID NOs: 3 and 4 are insufficient to describe the claimed genus.

Hence, Applicant has not, in fact, described the class-2 non-symbiotic haemoglobins from diverse plant sources, and the specification fails to provide an adequate written description of the claimed invention.

Therefore, given the lack of written description in the specification with regard to the structural and functional characteristics of the claimed compositions, it is not clear that Applicant was in possession of the claimed genus at the time this application was filed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Alexandrov et al. (EP 1033405 A2, Published June 9, 2000) taken with the evidence of Trevaskis et al. (PNAS, 94:12230-122230, 1997, also see GenBank sequence accession No. U94999 cited in the reference).

Alexandrov et al. disclose a method of producing a transgenic plant expressing increased levels of transgenic protein, comprising transformation of said plant with an expression cassette comprising a polynucleotide sequence SEQ ID NO: 44959 which has 100% sequence identity to instant SEQ ID NO: 4. See claims 1-34, page 329 and

SEQ ID NO: 44959. The sequence disclosed by Alexandrov et al. has 100% sequence identity to *Arabidopsis* class-2 haemoglobin as further evidenced by Trevaskis et al.

The properties of increased yield, increased biomass, increased floral architecture (encompassed by altered architecture) or increased cell division (encompassed by altered cell division) are inherent to the method disclosed in the reference which comprises expression of a polynucleotide sequence encoding SEQ ID NO: 44959 disclosed in the reference. Accordingly, Alexandrov et al. anticipated the claimed invention.

If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, rather than any distinct definition of any of the claimed invention's limitations, then preamble is not considered a limitation and is of no significance to claim construction. See MPEP 2111.02.

Also see In re Cruciferous Sprout Litig., 301 F.3d 1343,1346-48, 64 USPQ2d 1202, 1204-05 (Fed. Cir. 2002) where a claim at issue was directed to a method of preparing a food rich in glucosinolates wherein cruciferous sprouts are harvested prior to the 2-leaf stage. The court held that the preamble phrase "rich in glucosinolates" helps define the claimed invention, as evidenced by the specification and prosecution history, and thus is a limitation of the claim (although the claim was anticipated by prior art that produced sprouts inherently "rich in glucosinolates").

Also see *Integra LifeSciences I Ltd. V. Merck KGaA* 50 USPQ2d 1846, 1850 (DC Scalif 1999), which teaches that where the prior art teaches all of the required steps to

practice the claimed method and no additional manipulation is required to produce the claimed result, then prior art anticipates the claimed invention.

Accordingly, Alexandrov et al. anticipated the claimed invention.

Conclusions

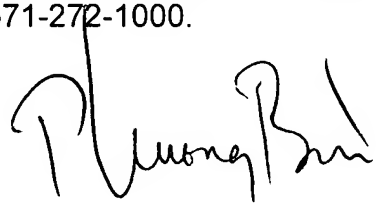
11. Claims 1-3 are rejected.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinod Kumar whose telephone number is (571) 272-4445. The examiner can normally be reached on 8.30 a.m. to 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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